

Claims

1. A feeder waveguide that has a plurality of branch waveguides branching from a feed side waveguide and that is provided with selection structures for selectively cutting off each of said branch waveguides, these selection structures being arranged at a starting position of each said branch waveguide at a point of branching from said feed side waveguide to a plurality of said branch waveguides.
- 5 2. A feeder waveguide that has a plurality of branch waveguides branching from a feed side waveguide and that is provided with selection structures for selectively cutting off each of said branch waveguides at positions that are $n\lambda/2$ inside each said branch waveguide from a starting position of each said branch waveguide at a point of branching from said feed side waveguide to a plurality of said branch waveguides, where λ is a wavelength of a transmission signal in a waveguide and n is a positive integer.
3. The feeder waveguide according to claim 1 or claim 2, wherein said feeder waveguide is formed from a waveguide tube.
4. The feeder waveguide according to claim 3, wherein said waveguide tubes are formed from a metal layer in a dielectric board and conductive walls that are effectively formed by conductive vias that are mounted in rows at a prescribed spacing in said dielectric board.
5. The feeder waveguide according to claim 3 or claim 4, wherein

said selection structures cut off a waveguide that form said branch waveguides by effectively forming conductive walls that block cross-sections of said waveguide tubes.

6. The feeder waveguide according to claim 5, wherein said selection structures are formed from: diodes that extend between opposing conductive walls that form waveguide tubes of said branch waveguides, and circuits for selectively applying a reverse bias voltage or a forward bias voltage to said diodes.

7. The feeder waveguide according to claim 5, wherein said selection structures are formed from conductive plates and structures that selectively cause said conductive plates to move to positions that block cross-sections of waveguide tubes that form said branch waveguides and to positions that open said waveguide tubes.

8. A sector antenna having a plurality of antennas each having directivity in a different direction and a feeder waveguide that branches midway from a feeder port and leads to each of said antennas, said sector antenna being provided with:
selection structures at a location of branching from a feed side waveguide to a plurality of branch waveguides of said feeder waveguide for selectively cutting off each of said branch waveguides at a starting point of each of said branch waveguides.

9. A sector antenna having a plurality of antennas each having

directivity in a different direction and a feeder waveguide that branches midway from a feeder port and leads to each of said antennas, said sector antenna being provided with:

- 5 selection structures at a location of branching from a feed side waveguide to a plurality of branch waveguides of said feeder waveguide for selectively cutting off each of said branch waveguides at positions located $n\lambda/2$ inside each of said branch waveguides from a starting point of each of said branch waveguides, where λ is a wavelength of a transmission signal within said
- 10 feeder waveguide, and n is a positive integer.

10. The sector antenna according to claim 8 or claim 9, wherein said feeder waveguide is formed from a waveguide tube.

11. The sector antenna according to claim 10, wherein said waveguide tubes are formed from a metal layer in a dielectric board and conductive walls that are effectively formed by conductive vias that are mounted in rows at a prescribed spacing in said dielectric board.

12. The sector antenna according to claim 10 or claim 11, wherein said selection structures cut off a waveguides that form said branch waveguides by effectively forming conductive walls that block cross sections of said waveguide tubes.

13. The sector antenna according to claim 12, wherein said selection structures are formed from: diodes that extend between opposing conductive walls that form waveguide tubes of said branch waveguides, and

circuits for selectively applying a reverse bias voltage or a forward bias
5 voltage to said diodes.

14. The sector antenna according to claim 12, wherein said
selection structures are formed from conductive plates and structures for
selectively moving said conductive plates to positions that block cross
sections of waveguide tubes that form said branch waveguides and to
5 positions that open said waveguide tubes.